AMENDMENT TO THE CLAIMS

1. (Currently Amended) A high capacity composite oscillating device comprising:

a disk-shaped oscillating body having a center which serves as an oscillation loop;

n sets~~, that is, two or more sets,~~ of bolt-tightened Langevin-type ultrasonic transducers (BLTs) having the identical vibration characteristics disposed at regular intervals on an outer periphery portion of said [[a]]disk-shaped oscillating body so as to oppose ~~to~~ each other, and;

n phase shifters for shifting the phase of an input to said n sets of BLTs by π/n;

wherein n is a positive integer greater than or equal to two, and;

~~the disk-shaped oscillating body having a center which serves as an oscillation~~ loop,

wherein said ~~the~~ BLTs are driven in such a manner that said ~~the~~ opposed BLTs are driven in an opposite-phase mode respectively, and said ~~the~~ adjacent sets of BLTs are driven in an oscillating mode in which the phase is shifted by π/n, so that composite oscillations occur at the center portion of said ~~the~~ disk-shaped oscillating body.

2. (Currently Amended) The ~~high capacity ultrasonic composite oscillating~~ device of ~~according to~~ claim 1~~,~~ further comprising an oscillating rod wherein a loop segment of oscillation of said ~~an~~ oscillating rod that oscillates in a composite flexure oscillating mode is connected to said ~~the~~ center portion of said ~~the~~ disk-shaped oscillating body.

3. (Currently Amended) A high capacity ultrasonic composite oscillating device

comprising:~~wherein the disk-shaped oscillating bodies are connected in series with~~

an oscillating rod ~~with while synchronizing oscillating phases so that ultrasonic transducers in the respective pairs on the respective disk-shaped oscillating bodies are driven in parallel or independently an~~ connected in series with one or more disk-shaped oscillating bodies, each one of said disk-shaped oscillating bodies further comprising:

a center which serves as an oscillation loop, and;

n sets of bolt-tightened Langevin-type ultrasonic transducers (BLTs) having the identical vibration characteristics disposed at regular intervals on an outer periphery portion of said disk-shaped oscillating body so as to oppose each other;

one or more of n phase shifters, each one of said phase shifters for shifting an oscillating phase of a set of said n sets of BLTs of each one of said one or more disk-shaped oscillating bodies by π/n;

wherein n is a positive integer greater than or equal to two, and;

wherein a respective set of BLTs of each of said n sets of BLTs disposed on each one of said one or more disk-shaped oscillating bodies are driven in parallel or independently, so that composite oscillations occur at an end of said oscillating rod.

4. (New) The device of claim 1 further comprising n converters configured to receive and convert said phase shifted input into two phase shifted inputs of opposite polarity.

5. (New) The device of claim 1 further comprising an oscillator configured to provide an input to said phase shifter.

6. (New) The device of claim 1 wherein said composite oscillations follow a

Lissajous track.

7. (New) The device of claim 2 wherein said composite oscillations occur at an end of said oscillating rod.

8. (New) The device of claim 7 wherein said composite oscillations are in a direction orthogonal to a center longitudinal axis of said oscillating rod.

9. (New) The device of claim 8 wherein an oscillating mode at said end of said oscillating rod is an oval oscillation.

10. (New) The device of claim 8 wherein an oscillating mode at said end of said oscillating rod is a circular oscillation.

11. (New) The device of claim 3 wherein said oscillating rod oscillates in a composite flexure oscillating mode.

12. (New) The device of claim 3 wherein a loop segment of oscillation of said oscillating rod is connected to each one of said center portions of said one or more disk-shaped oscillating bodies.

13. (New) The device of claim 3 wherein said composite oscillations are in a direction orthogonal to a center longitudinal axis of said oscillating rod.